is no change whatever. The flame reaction indicates the presence of soda.

From the above observation he pronounced the mineral to be infusible.

Fused with microcosmic salt, it shows a skeleton of silica; and if heated with borax in the oxidizing flame, the reaction of manganese is observed; the same if heated with carbonate of soda in the oxidizing flame.

On coal heated with cobalt solution a violet mass is produced, which is due to the presence of a small quantity of alumina and a larger of magnesia.

In regard to its solubility in acids, it was observed that it yielded only to hydrofluoric acid, the others having no effect. The fine powder was fused with carb. soda, in order to find all the elements contained in it by the processes in qualitative chemical analysis in the wet way; by this means were found silica, alumina, and manganese, lime and magnesia.

The quantitative analysis gave these results:—

Silica . . .	57.92	per ct.	contains	oxygen	27.91	
Alumina and manganese	2.39	"				
Lime . . .	11.98	"	"	"	3.42	= 14.45
Magnesia . .	26.23	"	"	"	10.49	
Soda . . .	2.10	"	"	"	0.54	
	100.62					

The alumina and manganese amounting to 2.39 per cent. are considered as an impurity, and for this reason they are excluded from the consideration of the ratio. The oxygen ratio of the bases and the silica is as $14.45 : 27.91 = 1 : 1.9$, or adopting 2 for the latter will give the general expression $(\dot{R})_2\ddot{S}$, in which $(\dot{R})$ stands for the monoxyds $(\dot{C}a, \dot{M}g, \dot{N}a)$. The new mineral species hexagonite is formulated thus: $(\dot{C}a, \dot{M}g, \dot{N}a)\ddot{S}i_2$.

As this described bisilicate is anhydrous, and is crystallized in hexagonal form, it consequently belongs to the beryl group, of which it will be the third species.

On Opuntia Rafinesquii and O. vulgaris.—Mr. MARTINDALE remarked that the large natural order of plants, the *Cactaceæ*, comprises about 800 species chiefly natives of tropical countries, and the western part of the United States, where many grow to an immense size. The only representative of this large order in the northern United States, east of the Mississippi, is the genus *Opuntia*. The only species of that genus described in the older works on the flora of that section, is the so-called *O. vulgaris*, "from Massachusetts, southward, mostly near the coast." In the new edition of Gray's Manual, the *O. Missouriensis*, a western species having dry prickly fruit, is admitted as occurring in Wis-

consin, and *O. Rafinesquii*, with smooth pulpy fruit, somewhat like the *O. vulgaris*, also in the western section from Wisconsin to Kentucky. Dr. George Engelmann, of St. Louis, in a recent examination of the genus, after comparing specimens from Massachusetts, New York, Pennsylvania, and New Jersey, heretofore classed as *O. vulgaris*, determines them to be identical with *O. Rafenesquii* from the west. In a recent note from him he says, "I have specimens growing here from Massachusetts, New York, Pennsylvania, and New Jersey, and they are all *O. Rafinesquii;* the *vulgaris* I have only from the falls of the Potomac and South Carolina."

In June last Mr. Martindale collected near Haddonfield, N. J., some specimens of *Opuntia* in flower, which on examination, and comparison with the species as figured in the fourth volume of the Pacific Railroad Reports, he had determined to be the *O. vulgaris*. In the latter part of July he again examined the plant, then in full fruit, and his former conclusion was sustained. He also sent a fully developed specimen to Dr. Engelmann, who pronounced it to be the true *O. vulgaris*, which he had not before seen north of the falls of the Potomac, and asked if it is a real native in New Jersey. On that point he thought there could be no doubt, as the owner of the land, John Gill, informed him it had been there to his knowledge at least twenty-five years; and while it does not incline to spread any, shows no signs of disappearing.

On comparing this plant with specimens growing near the coast, and which appears to be the *O. Rafinesquii*, the following characters appear. The *O. vulgaris* has a pale green appearance, the flat joints obovate, with small ovate subulate leaves, stout and tapering from a broadish base, mostly less than one-fourth of an inch in length, and appressed to the joint, with a fascicle of minutely barbed bristles, and occasionally a spine in their axils. The flowers are sulphur-yellow; the fruit smoothish, about an inch in length, and half an inch in thickness, somewhat ventricose, or largest just above the middle, and tapering to the base, with a depression at the top where the flower had fallen off, from one-eighth to one-quarter of an inch in depth. The *O. Rafinesquii* has rather larger flowers, occasionally with a reddish centre; more numerous petals; the fruit fully one and a half inches in length, with an elongated tapering base; the depression in the top of the specimens examined is rather shallower than in the *vulgaris;* the older joints have a darker green appearance, the leaves more slender, longer, from one-quarter to three-eighths of an inch in length, and spreading, and more frequently with the large spine, particularly about the top of the joint.

He had examined specimens from Woodbury, New Jersey, about twelve miles from the Haddonfield locality, which are *O. Rafinesquii*, and which have fusiform tubers on the extremities of the roots, similar in this respect to a western form of *Rafinesquii* described in the Pacific Railroad Reports as *O. fusiformis*. He

had not been able to find tubers on the vulgaris, and the published description of that species made no mention of any.

There is growing in the Meehan nurseries, near Germantown, Pa., a specimen of *O. Rafinesquii* from New Jersey, which is identical with one from Illinois, also a specimen of *O. vulgaris*, from Harper's Ferry, Virginia, which is identical with the one collected near Haddonfield, N. J. These two species are somewhat closely allied; yet the form and position of the leaves are manifestly different, and being early deciduous is possibly the cause of their being so long confounded. Certain it is, if the two species as described are distinct, we have both of them in New Jersey.

Supernumerary Anterior Extremity in a Domestic Cow.—Dr. ALLEN exhibited a drawing of a malformation somewhat similar to that recorded in the Proceedings of July 25.

In this instance, however, the digits were reduced to two. These were of unequal size and one only was terminal. The remaining digit was appended to the side of the metacarpus, but was not articulated with it. It was indeed a dwarfed digit held in position to the metacarpus by fibrous tissue and integument. When at rest it lay nearly parallel to the main digit. Each digit possessed a well-developed hoof-like covering, the larger mass being curved and compressed from side to side, while the smaller one was styliform.

Above the smaller digit was a small conical appendage, which may be considered a localized hypertrophy in the normal position of the "cleet."

AUGUST 22.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty members present.

AUGUST 29.

The President, Dr. RUSCHENBERGER, in the chair.

Twelve members present.

A paper entitled "Note on the Discovery of Representatives of Two Orders of Fossils new to the Cretaceous Formation of North America," by Wm. M. Gabb, was presented for publication.

On the Coal and Iron Resources of Alabama.—Mr. WILLIAM GESNER remarked that a number of applied and interesting